ECONOMIC EFFICIENCY OF FILLETING YIELD OF FARMED MEDITERRANEAN MARINE FISH SPECIES

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EKONOMSKA EFIKASNOST FILETIRANOG PRINOSA RIBLJIH VRSTA GAJENIH U MEDITERANU

Apstrakt

Filetirani prinos (FY%) i koeficijent konverzije hrane (FCR) gajenog brancina *(Dicentrarchus labrax);* orade (*Sparus aurata*); kalifornijske pastrmke *(Oncorynchus mykiss)* i hame *(Argyrosomus regius)* ispitani su kod riba gajenih na severo zapadu Grčke. Rezulati predstavljaju procenjenu količinu ribe koje je potrebna da se proizvede da bi se dobio kilogram filetirane ribe. Ova procena je zahtevana u svrhe operativnog menadžmentaza kompanija koje se bave preradom ribe.

Najniži FY i FCR bio je kod hame, dok su više vrednosti zabeležene kod gajene kalifornijske pastrmke. Dobijeni rezultati ukazuju da se FCR, FY i tržišna cena moraju uzimati u obzir za procenu ekonomske efikasnosti gajene ribe. U stvari FY ne mora da utiče na ekonomsku efikasnost proizvodnje hame, vrste koja ima mnogo veću tržišnu vrednost u poređenju sa brancinom, oradom i kalifornijskom pastrmkom

Ključne reči: akvakultura, ekonomija, prinos fileta
Keywords: aquaculture, economics, filleting yield

INTRODUCTION

Somatometric parameters of farmed fish may vary according to endogenous and exogenous parameters including genetic (Taylor and McPhail 1985), food availability (Park et al., 2001; 2007) and overall environmental conditions to which farmed fish are exposed (Sara, et al., 1999). Farmed fish may therefore exhibit between and within species variability in morphological parameters (Sara, et al., 1999; Mairesse et al., 2005). The economics of aquaculture can be influenced by a combination of parameters, nevertheless, feed cost is

a major component of total production cost in fish farms and feed conversion rate (FCR) is improved when lees amount of aquaculture feed is required for producing a unit of farmed fish body mass. Furthermore, the edible part of farmed fish constitutes less than 50% of the total body weight of farmed fish. In fact filleting yield (FY%) is much lower in all farmed fish and fillet weight represent the commercial important portion of total body weight of produced fish. For this reason both FCR and FY% are significant economic parameters for aquaculture. The purpose of the present work was to compare filleting yield and FCR of farmed sea bass (*Dicentrarchus labrax*); gilthead sea bream (*Sparus aurata*); rainbow trout (*Oncorynchus mykiss*); and meagre (*Argyrosomus regius*). This was investigated in farmed fish in NW Greece.

MATERIALS AND METHODS

Except trout which was reared in fresh water pond, the other species were reared in sea cages. After harvesting, samples were transferred to the laboratory, where somatometric measurements and filleting took place. Fish were manually gutted, skinned and beheaded before filleting. Data of FCR were collected from the fish farm logs.

RESULTS AND DISCUSSION

The filleting yield and FCR of farmed sea bass, sea bream, rainbow trout and meagre are presented in Table 1. The filleting yield and FCR of meagre was lower from the sea bass and gilthead sea bream, indicating that meagre exhibits improved feed conversion ration but lower percentage of fillets present in the final product. These two parameters have a significant effect on economic parameters of aquaculture. Feed cost represents a major element of the cost of producing farmed fish, frequently reaching levels more than 40% of the total cost. A lower FCR value indicates that less feed is required to produce 1 kg of farmed fish. The economics of aquaculture is even better when a lower FCR is combined with a higher filleting yield, as is the case for farmed meagre when compared to farmed sea bass and gilthead sea bream in the present work. On the contrary, farmed trout exhibited much lower efficiency in converting feed to body mass, nevertheless, trout exhibited higher filleting yields than the other three marine fish species used in the present work.

Table I. Feed conversion ration (FCR) and fillet yield (FY) of farmed Sea bass, Sea bream, Rainbow trout and Meagre (Average values of 25 fish ±SD)

	Sea bass	Sea bream	Rainbow trout	Meagre
FCR	1.18	1.11	1.43	1.08
FY%	42.15(2.19)	44.93(3.62)	51.06(4.18)	39.58(2.94)

The meagre is a potential new species for Mari-culture with very good prospects for rapid growth, low mortality (Mittakos et al 2012) and high nutritional content of lipids (Grigorakis et al 2011), nevertheless, the results indicate that trout is better in producing fil-

lets but sea bream, sea bass and meagre cultivated in sea water cages exhibited better feed conversion ratios than trout reared in fresh water ponds.

CONCLUSIONS

The results indicate that rainbow trout exhibited better filleting yield when compared to farmed sea bream, sea bass and meagre cultivated in sea water cages exhibited better feed conversion ratios than trout reared in fresh water ponds. The results indicate that both FCR and FY should be used in order to evaluate the economic efficiency of farmed fish. Meagre and trout have a much grater market value when both are sold as fillets but the economic consequences of lower FY of farmed meagre may have limited consequences for the economic efficiency of producing this species. In fact, even a lower filleting yield may not influence the economic efficiency of producing meagre which has a much greater market value compared to farmed sea bas, sea bream and rainbow trout.

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